

ComfortStar®

Introduction & Service manual

LUC7/LCM7 Series



Content

- Product lineup
- Features
- Structure, wiring and setting
- Troubleshooting

Product Lineup and Features

- Product Lineup

Factory Model	Capacity (Btu/h)	Motor Type	Default Throttling Device*
LUC7-18	18,000	PSC	Piston
LUC7-24	23,000	PSC	Piston
LUC7-36	34,200	PSC	Piston
LUC7-48	45,000	PSC	Piston
LUC7-60	54,000	PSC	Piston
LCM7-24	23,200	ECM	Piston
LCM7-36	34,200	ECM	Piston
LCM7-48	45,000	ECM	Piston
LCM7-60	54,000	ECM	Piston
LCM7-61	55,000	ECM	Piston

*Throttling device could be customized TXV



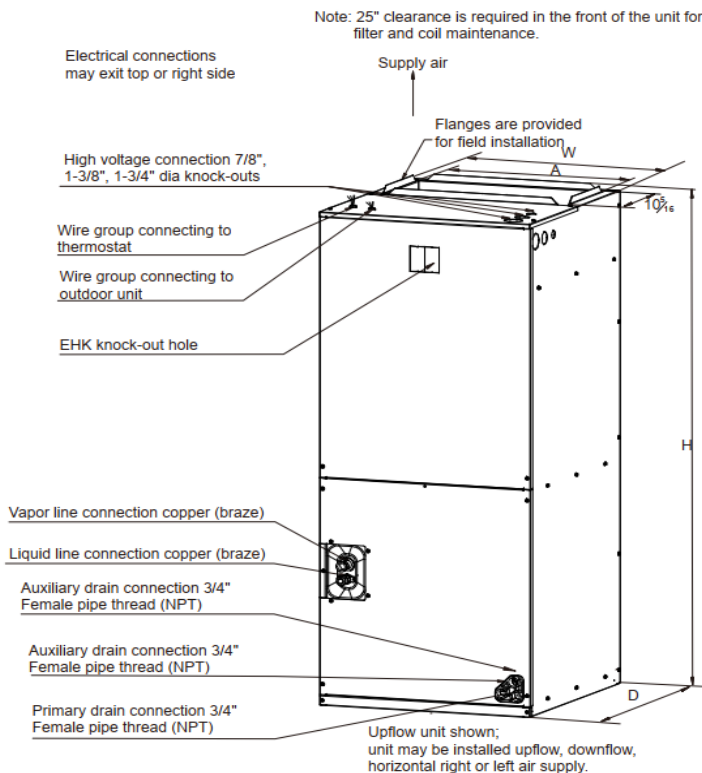
• Features

- ◆ High heat-transfer efficiency and low static-pressure drop A-shaped coil.
- ◆ Foil-faced insulation to prevent energy loss through the cabinet.
- ◆ Factory-sealed cabinet certified to achieve 2% or less air leakage rate at 1.0 inch water column.
- ◆ Multi-stage blower Speed Control to align with varying capacity demands.
- ◆ Multi-speed constant-torque ECM motor.
- ◆ 4-position installation: Upflow, Horizontal Right, Downflow, Horizontal Left.
- ◆ Horizontal and vertical condensate drain pans standard, primary and secondary condensate fittings.
- ◆ Field-installed electric heater kits 5, 7.5, 10, 15, 20 kW available as accessories. Multiple electrical entry locations.
- ◆ Dual front panel, volute and coil with slide track, TXV with threaded connection for easy maintenance.
- ◆ Integrated filter rack with toolless door access.
- ◆ Easy-to-braze copper evaporator connection.
- ◆ TXV designed for easy piston replacement.
- ◆ All-aluminum heat exchanger extends product lifetime.
- ◆ Advanced internal welding process to reduce potential corrosion.
- ◆ AHRI and ETL listed.
- ◆ Polymer condensate drain pan with UVC inhibitor to extends product lifetime.
- ◆ Fully-insulated cabinet design.
- ◆ R454B refrigerant sensor ensures safe operation.

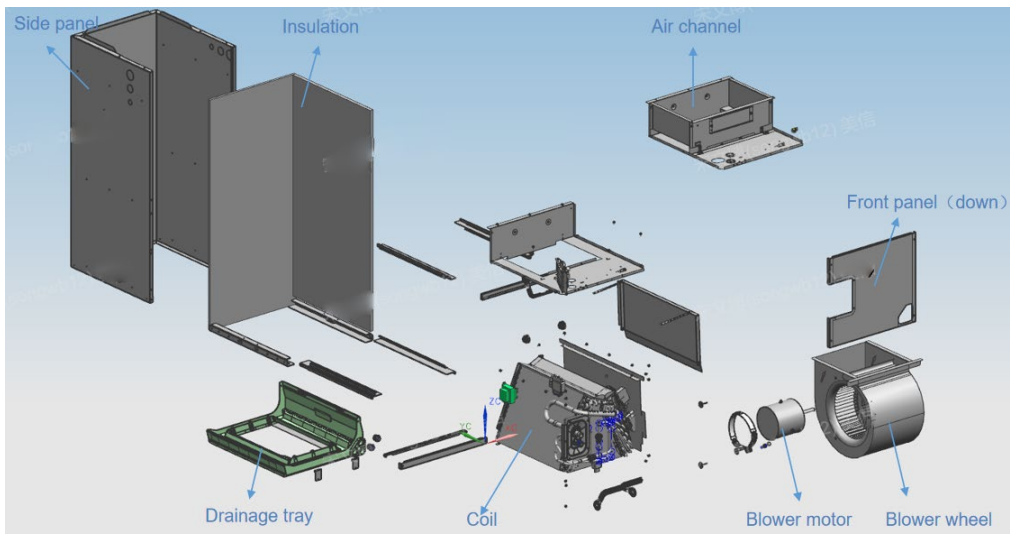
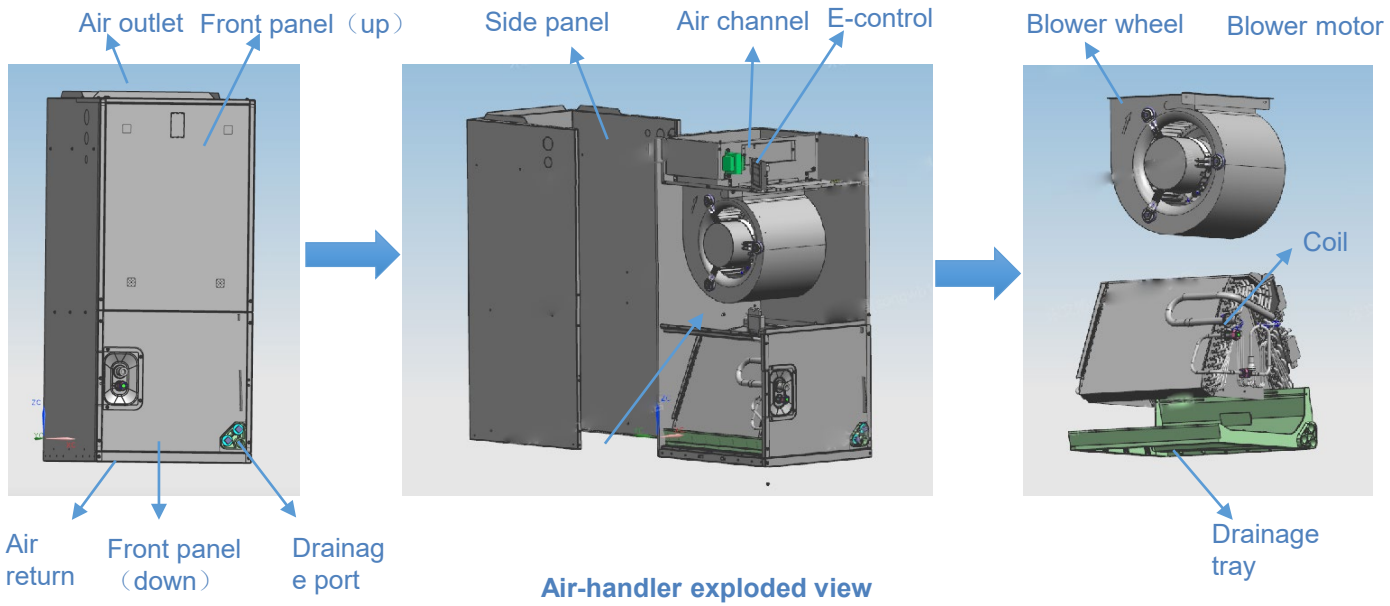
Structure, Wiring and Setting

- Structure

Factory Model	Dimension H×W×D(inches)
LUC7-18-15	41-3/8×18-1/8×20-1/2
LUC7-24-15	46-1/2×19-5/8×21-5/8
LUC7-36-15	
LUC7-48-15	51-1/2×22×24
LUC7-60-15	
LCM7-24-15	41-3/8×18-1/8×20-1/2
LCM7-36-15	46-1/2×19-5/8×21-5/8
LCM7-48-15	54-1/2×22×24
LCM7-60-15	
LCM7-61-15	



- **Structure**

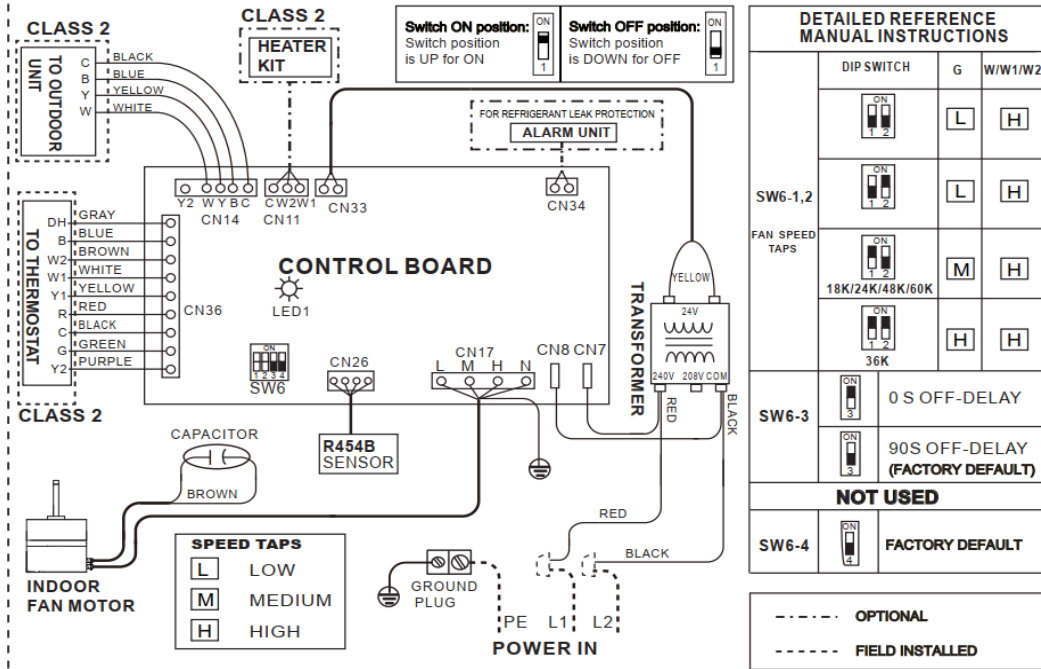


Air-handler exploded view

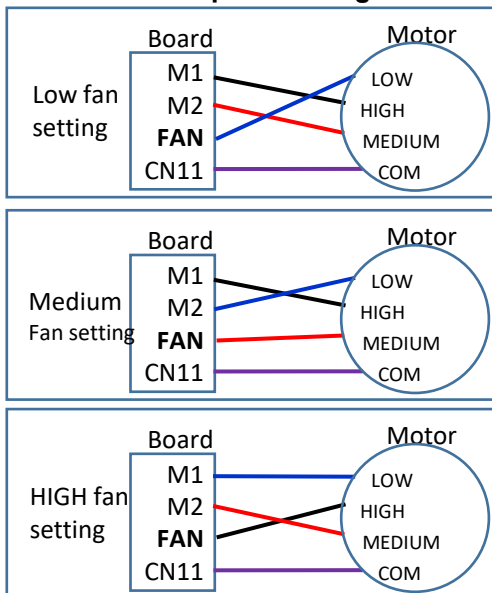
Wiring and Fan Speed Setting

PSC Motor Type

Wiring diagram

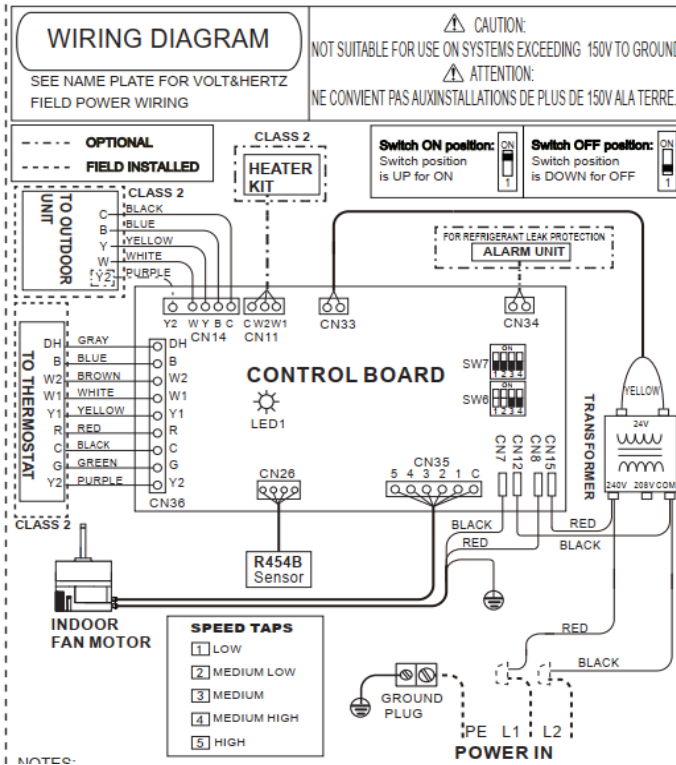


Fan speed setting

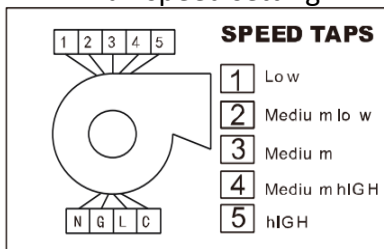


Wiring and Fan Speed Setting

ECM Motor Type



Fan speed setting



LED light indication



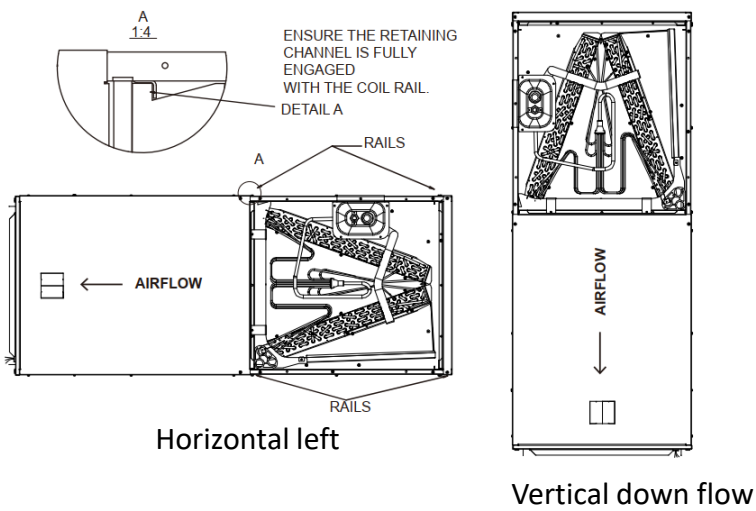
Note: LED 4 light on indicates the unit is normal, if not on indicates power off or abnormal.

DIP-switch functions

DETAILED REFERENCE MANUAL INSTRUCTIONS			
1-STAGE CONTROLLER			
DIP SWITCH	Y1 OR G	W1/W1W2	
SW6-1,2	48K	24K/36K	50K
FAN SPEED TAPS			
2-STAGE CONTROLLER			
DIP SWITCH	Y1 OR G (MIN)	Y1-Y2 OR W1/W1W2 (MAX)	
SW6-1,2	61K	24K/36K	50K
FAN SPEED TAPS			
NOT USED			
SW6-3,4			FACTORY DEFAULT
SW7-1,2			FACTORY DEFAULT
SW7-3,4			FACTORY DEFAULT

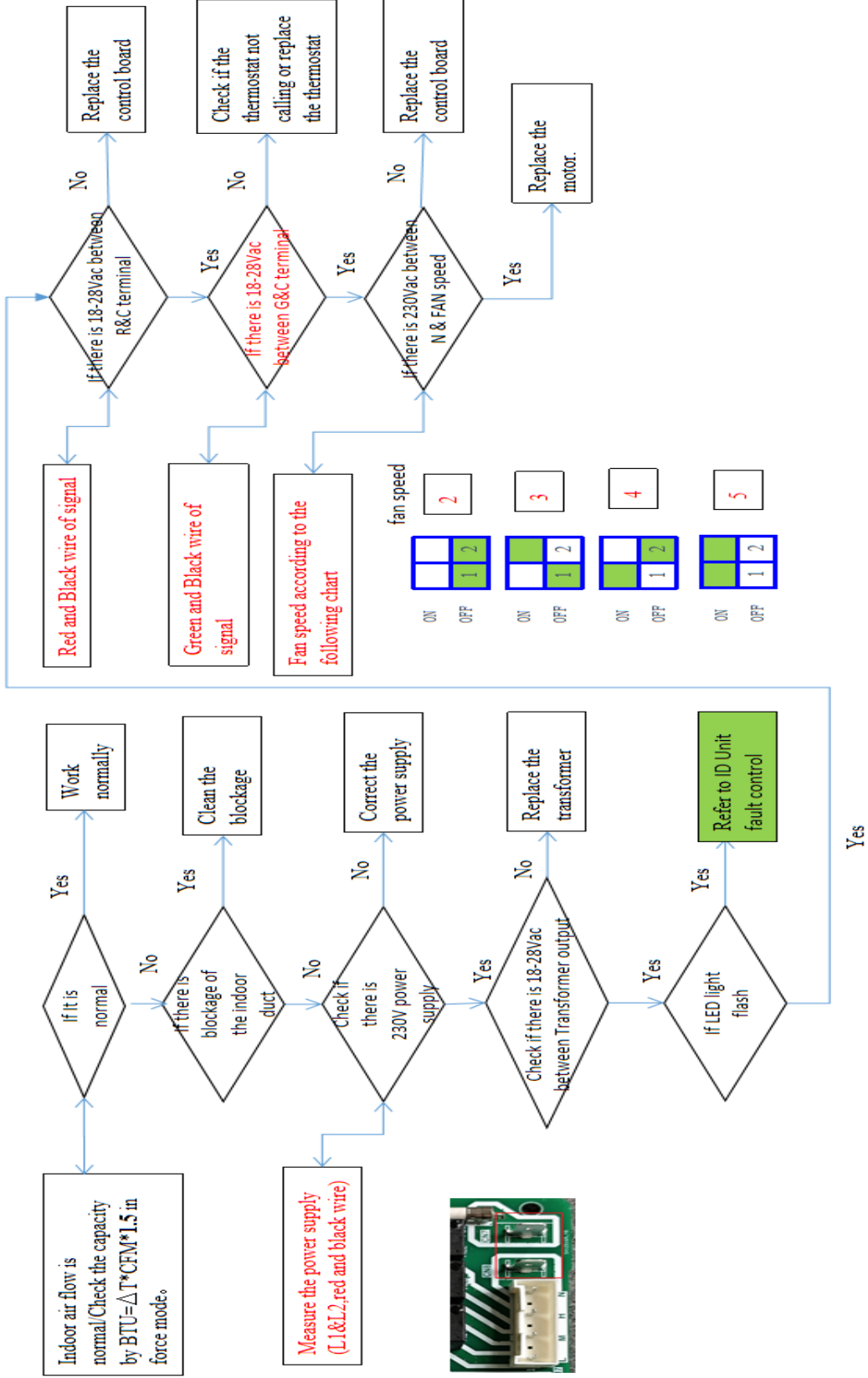
- ## Installation Direction

This series unit could be installed horizontal left direction, or vertical down flow (need to lift turn around the coil up to down as below illustration).

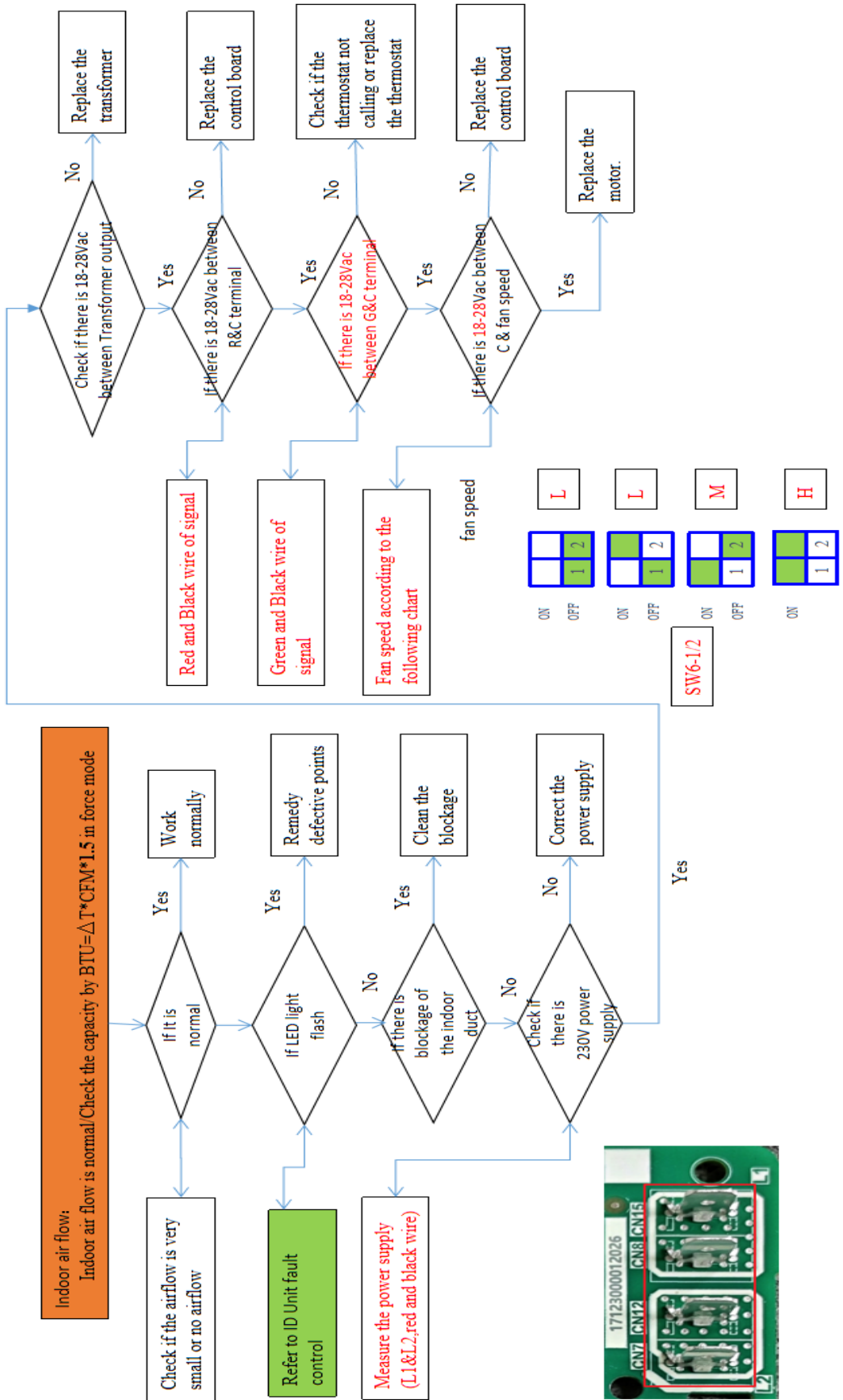


Troubleshooting

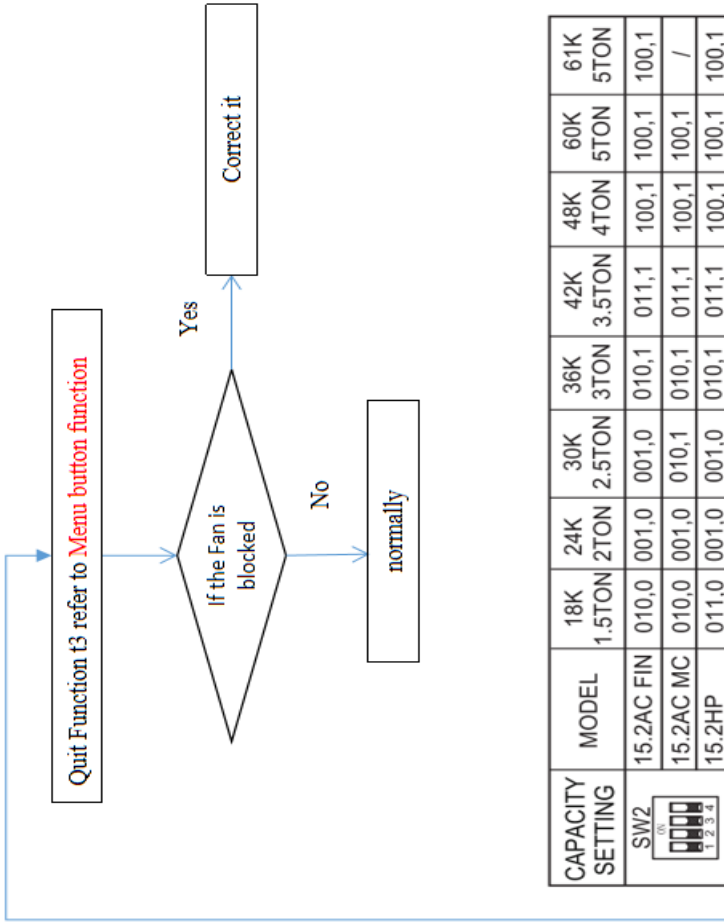
Check for indoor PSC unit status



Check for indoor ECM unit status



Check for Condenser fan motor Speed

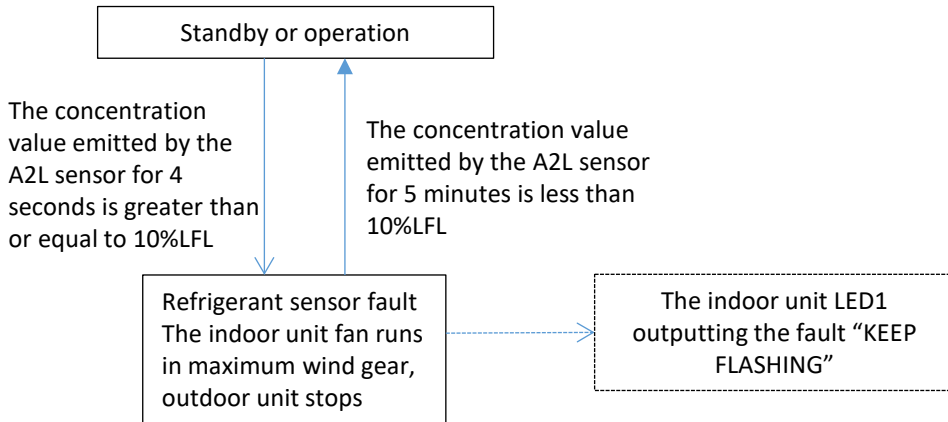


CAPACITY SETTING	MODEL	18K 1.5TON	24K 2TON	30K 2.5TON	36K 3TON	42K 3.5TON	48K 4TON	60K 5TON	61K 5TON
SW2	15.2AC FIN	010,0	001,0	001,0	010,1	011,1	100,1	100,1	100,1
	15.2AC MC	010,0	001,0	010,1	010,1	011,1	100,1	100,1	/
	15.2HP	011,0	001,0	001,0	010,1	011,1	100,1	100,1	100,1

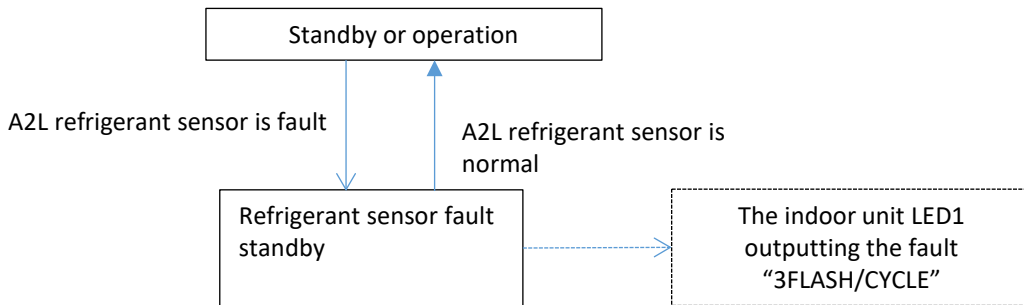
Capacity setting	0010	0100	0110	0101	0111	1001
Max Speed	850	930	980	930	980	1050

ID Unit fault control

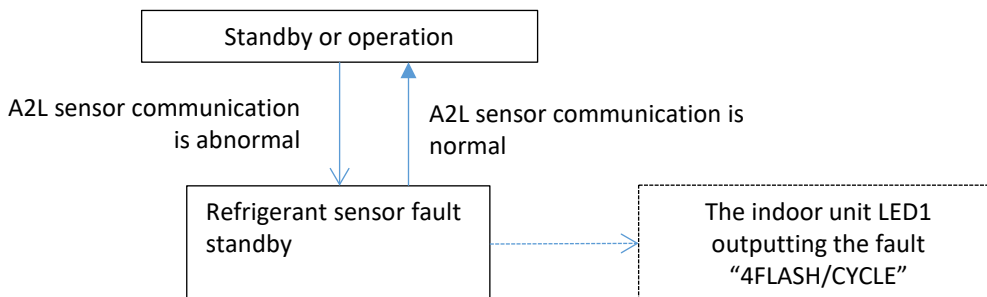
(1) Refrigerant leakage fault in indoor unit



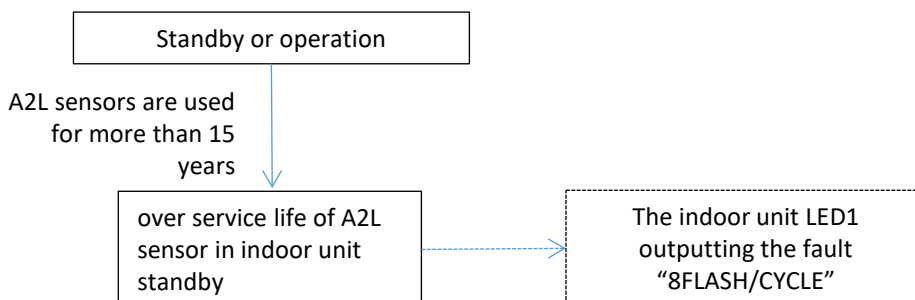
(2) A2L refrigerant sensor fault (A2L sensor)



(3) A2L sensor communication fault (A2L sensor)

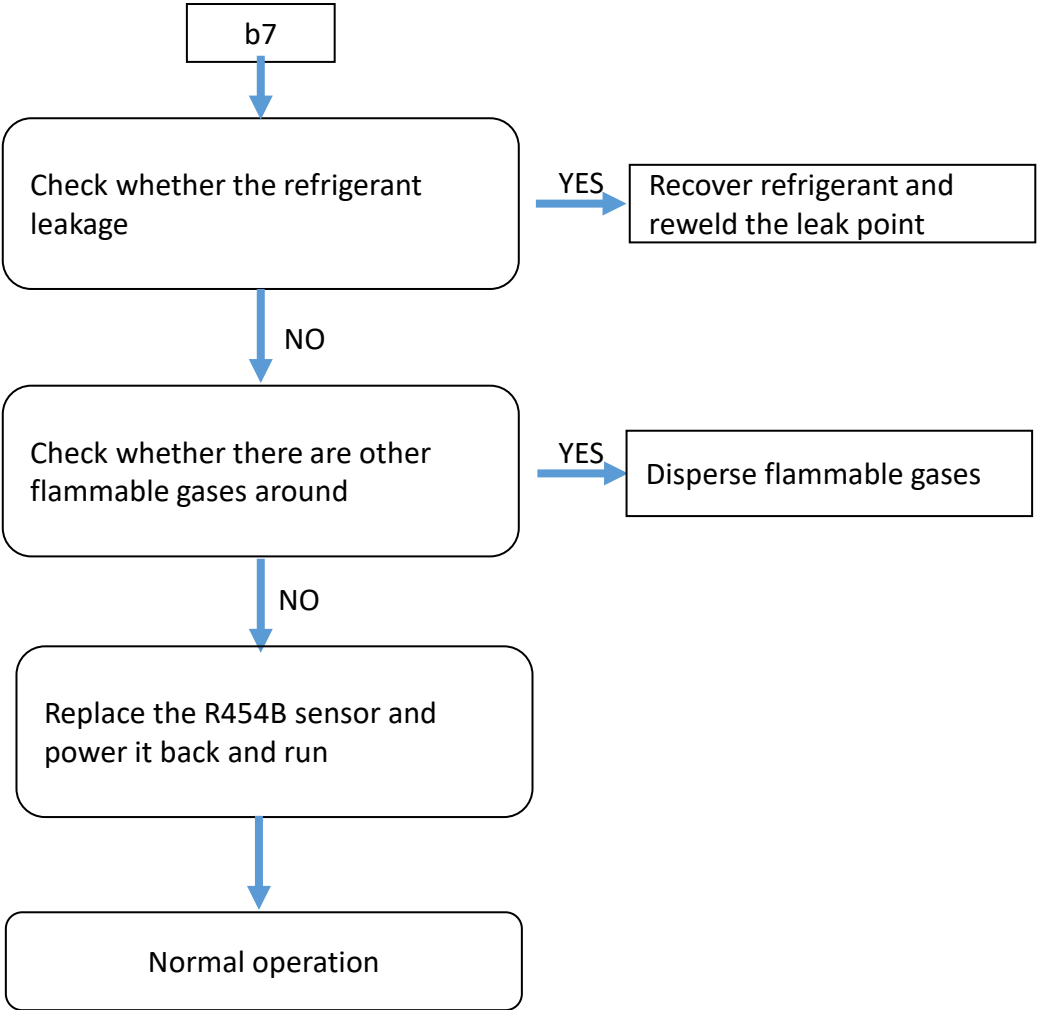


(4) A2L sensor over service life in indoor unit



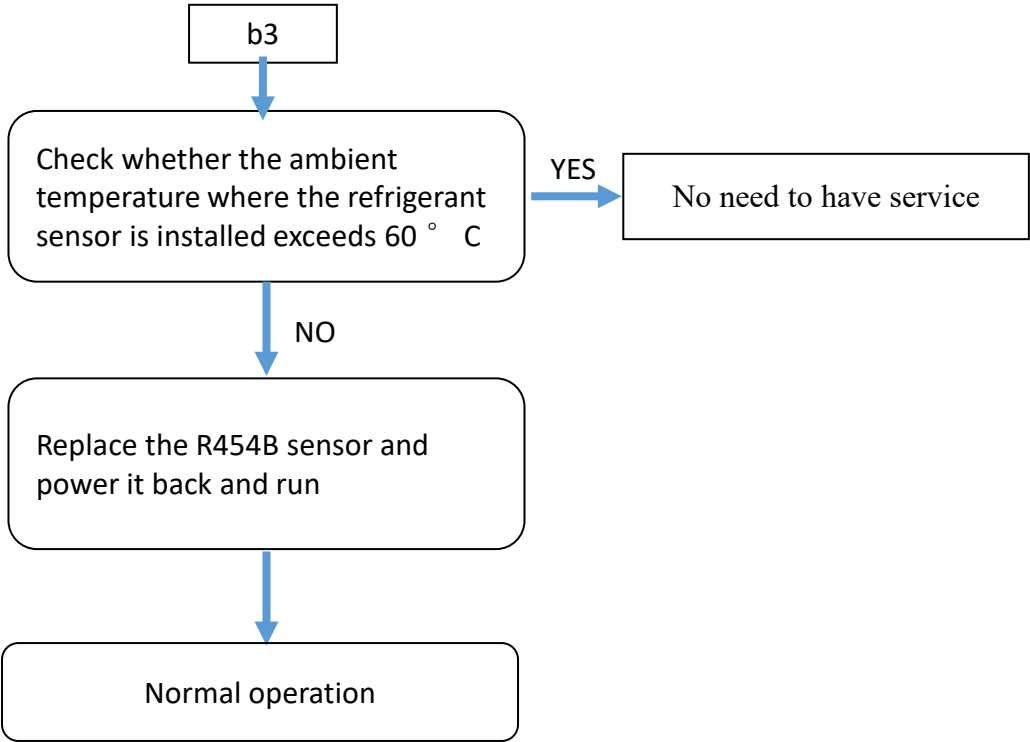
ID Unit fault troubleshooting

Faulty code	Keep flashing
Model	All
Name	Refrigerant leakage fault
Classify	Refrigerant leakage
Possible cause	· Refrigerant leakage



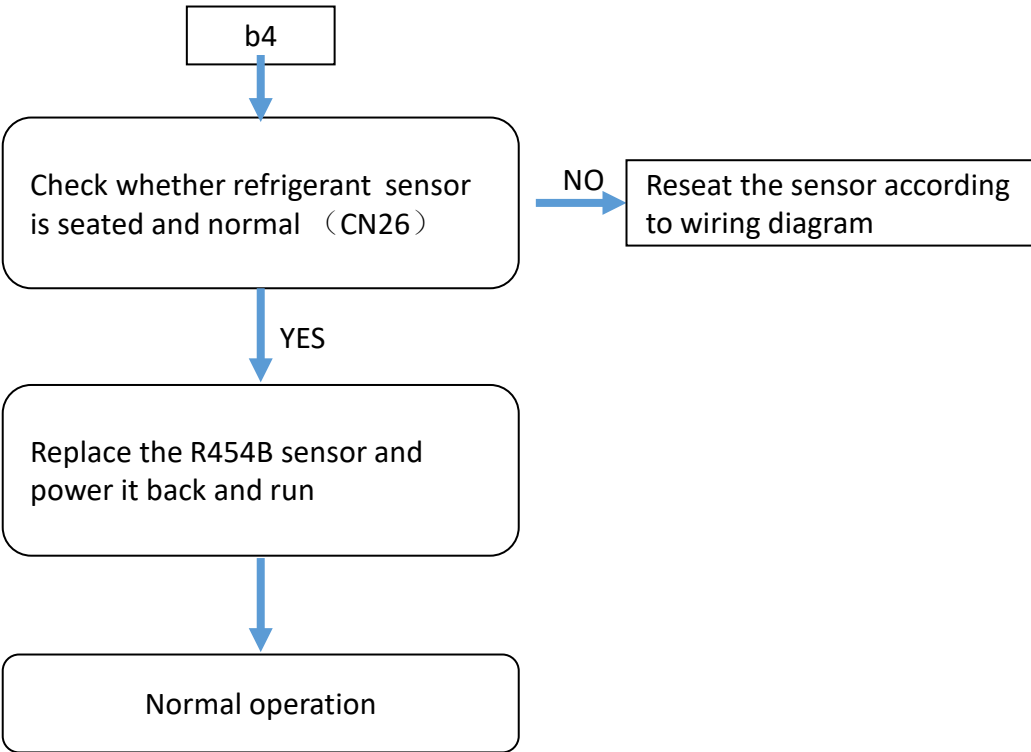
ID Unit fault troubleshooting

Faulty code	3 flash/cycle
Model	All
Name	R454B sensor fault in IDU
Classify	Sensor fault
Possible cause	<ul style="list-style-type: none">· Sensors failed· Beyond the normal operating temperature range



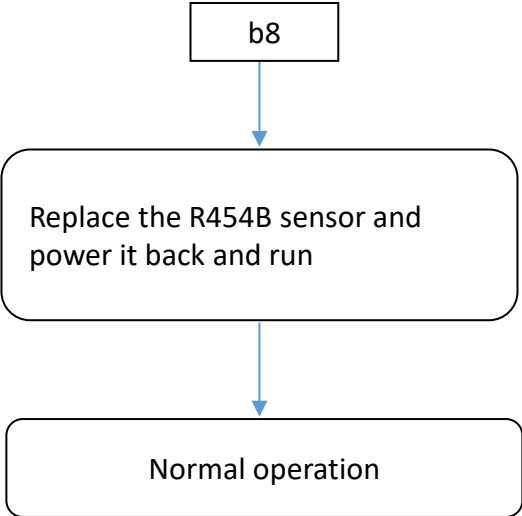
ID Unit fault troubleshooting

Faulty code	4 flash/cycle
Model	IDU
Name	R454B sensor communication fault in IDU
Classify	Electric issue
Possible cause	<ul style="list-style-type: none"> · refrigerant sensor line connection in IDU abnormal: refrigerant sensor signal line in IDU is not properly plugged (CN26) · Refrigerant sensor in IDU abnormal: damaged



ID Unit fault troubleshooting

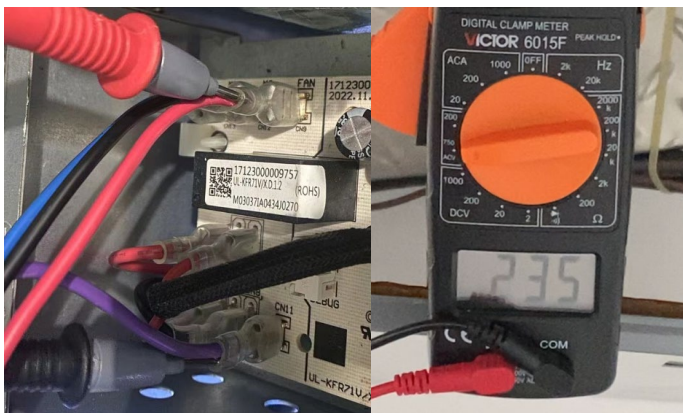
Faulty code	8 flash/cycle
Model	All
Name	R454B sensor over service life
Classify	Sensor fault
Possible cause	· Over service



PSC Fan check

If the PSC fan motor doesn't run properly,

1. Measure the motor input voltage, use multi-meter to measure voltage between terminals **FAN**(on board) and **CN11**(on transformer), the normal voltage should be around 220V AC.
2. Measure resistance of motor windings, between **COM&HIGH**, **COM&MEDIUM**, **COM&LOW**, their normal resistance value should be 5~100Ω(depends on different models).



Measure input voltage to motor

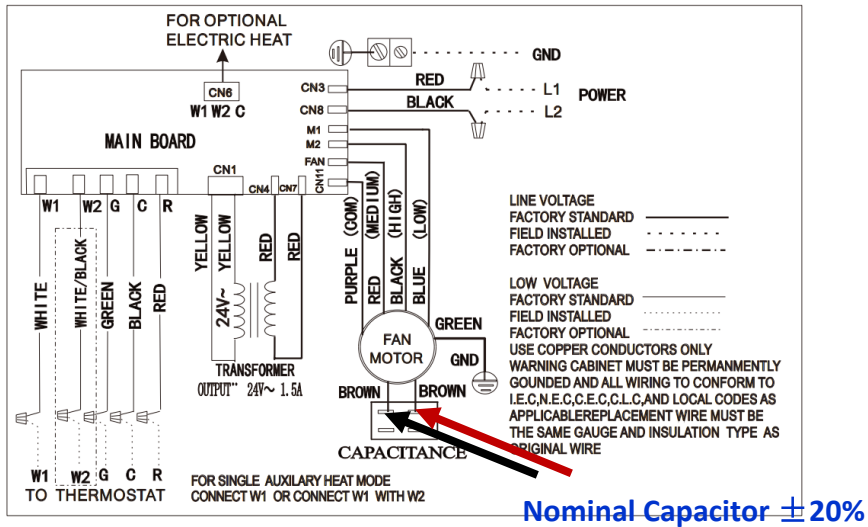


Example: Measure resistance of motor winding

PSC Fan check

If the PSC fan motor doesn't run properly,

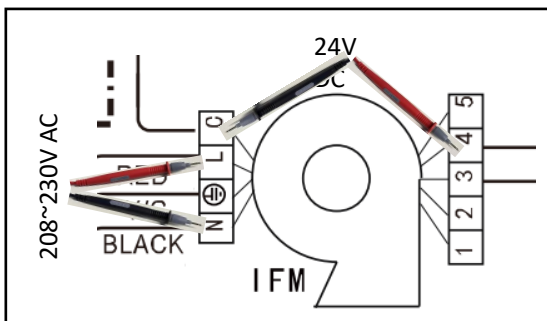
3. Measure the capacitor: discharged the capacitor then disconnect it then measure, it's normal value is nominal capacitance $\pm 20\%$.



ECM Fan check

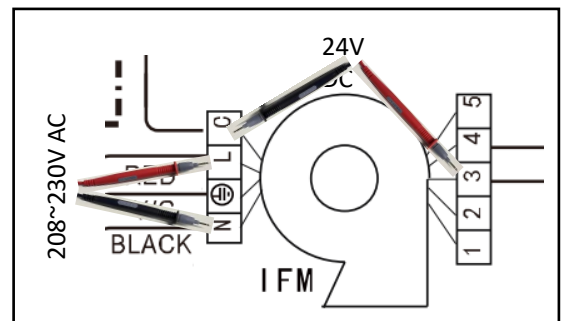
If the ECM fan motor doesn't run properly,

1. Measure the motor speed signal, use multi-meter to measure voltage between terminals **C&3** or **C&4**, the normal voltage should be 24V DC when the fan turns on.



When terminal 4 energized

OR
(Depends on terminal 3 or 4 energized)

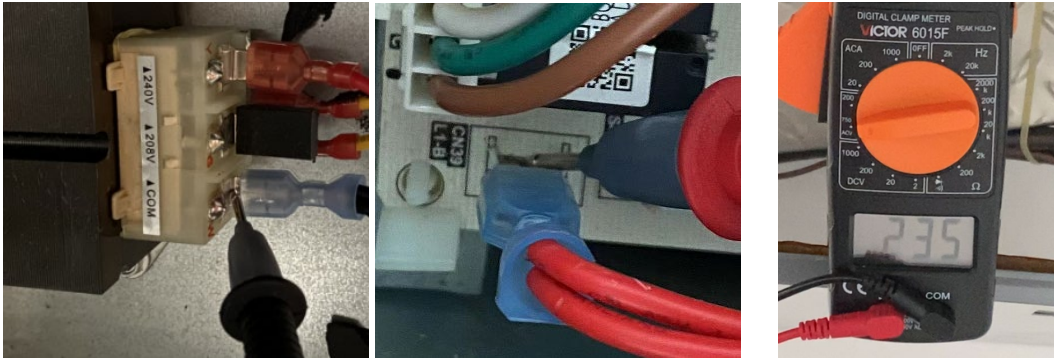


When terminal 3 energized

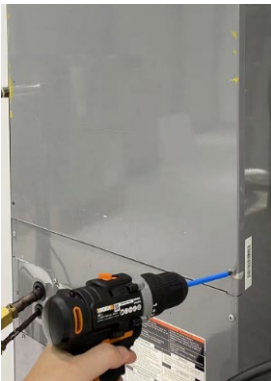
ECM Fan check

If the ECM fan motor doesn't run properly,

2. Measure the motor input voltage, use multi-meter to measure voltage between terminals **CN39**(on board) and **COM**(on transformer) , the normal voltage should be around 220V AC.
3. Measure the resistance of motor winding, the normal resistance value should be 5~100Ω



Control Board Replacement



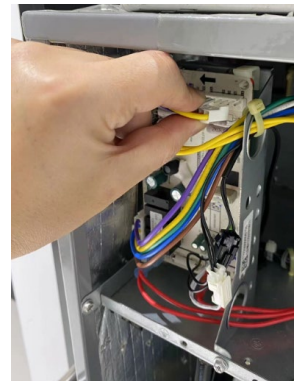
1. Remove front panel screws



2. Remove front panel

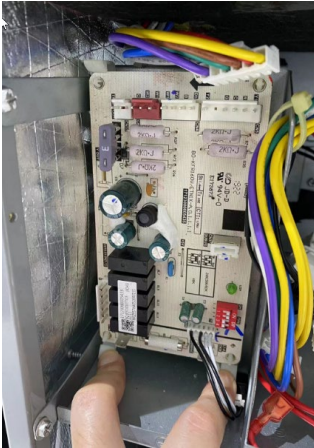


3. Take picture of wiring

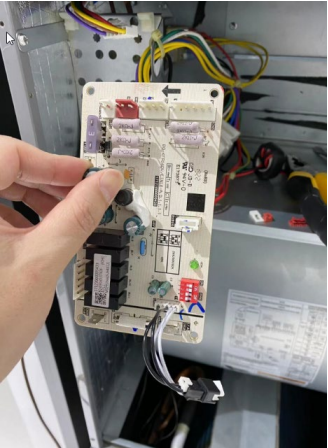


4. Detach all wires

Control Board Replacement



5. Press the fixture and loosen the board

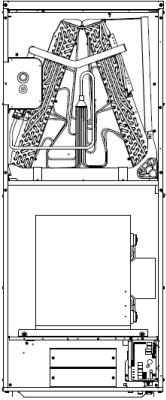
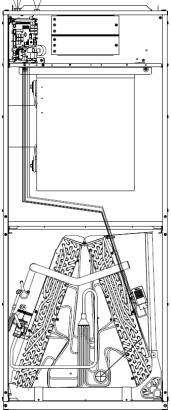


6. Take out the board

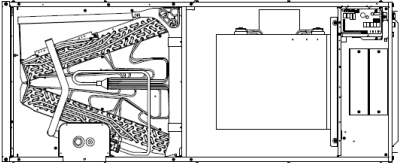
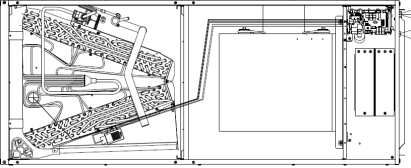


7. Install a new board, set the capacity dip-switch per the wire diagram on the unit.

Installation positions of refrigerant sensors in different installation modes



R454B Refrigerant Sensor



R454B Refrigerant Sensor

Internal structural parts repair and replacement guidelines

Refrigerant sensor repair and replacement guidelines separately

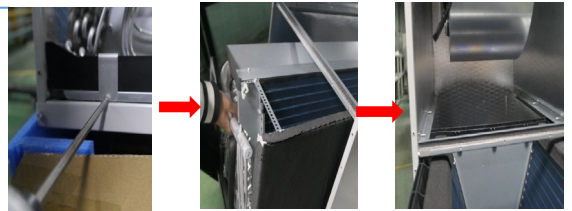
Remove the screws that fix the Refrigerant sensor and replace the Refrigerant sensor. Reuse screw to secure the Refrigerant sensor.

Use zip cable ties to reattach the sensor wire body to the left side of the Refrigerant sensor and the wire buckle.

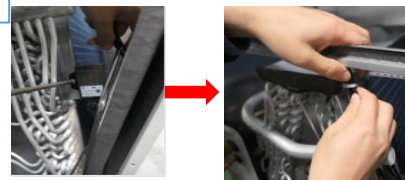


Instructions for replacing Refrigerant sensor during reverse installation of evaporators

Remove the screws that secure the water collection tray assembly, extract the evaporator components from the box, reverse the evaporator components by 180 degrees, and push them back into the unit along the guide rails on both sides of the unit.



Remove the screws that fix the Refrigerant sensor and replace the Refrigerant sensor. Reuse screw to secure the Refrigerant sensor.



Use zip cable ties to reattach the sensor wire body to the left side of the Refrigerant sensor and the wire buckle.

